UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 29 1991

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Guidance on RCRA Corrective Action Decision Documents: Statement of Basis and Response to Comments

FROM: Don R. Clay
Assistant Administrator

TO: Regional Administrators
Regions I-X
Frank Covington, NEIC

The Office of Waste Programs Enforcement, in consultation with the Office of Solid Waste, Office of General Counsel, Office of Enforcement, and the Regions, has drafted guidance for documenting RCRA corrective action decisions. The guidance presents standard formats for documenting RCRA corrective action decisions and promotes clear and logical presentations of rationales for remedy selection.

We appreciate the comments received from the Regions and have incorporated most of them into the guidance. Other issues raised by the Regions, such as the development of national cleanup criteria and additional guidance on the use of the remedy decision factors, were not within the scope of this guidance. These issues will be addressed by Subpart S, once promulgated, or in subsequent guidance.

Thank you for your assistance in developing this document. If you or your staff have any questions on this guidance, please contact Tracy Back (382-3122).

Attachment

cc: Kathie Stein, Office of Enforcement
Lisa Friedman, Office of General Counsel
Sylvia Lowrance, Office of Solid Waste

OSWER Directive 9902.6
February 1991

GUIDANCE ON RCRA CORRECTIVE ACTION DECISION DOCUMENTS:

THE STATEMENT OF BASIS

FINAL DECISION AND RESPONSE TO COMMENTS

Office of Waste Programs Enforcement
U.S. Environmental Protection Agency
Washington, D.C. 20460

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF EXHIBITS

LIST OF FIGURES

This guidance is a general statement of policy; it does not establish or affect legal rights or responsibilities; it does not establish a binding norm and is not finally determinative of the issues addressed; Agency decisions in any particular case will be made applying the law and regulations on the basis of specific facts and actual action.

CHAPTER 1

INTRODUCTION

1.1 PURPOSE OF THIS GUIDANCE

This guidance on preparing Resource Conservation and Recovery Act (RCRA) Statement of Basis Documents and the Response to Comments (RTC) has been developed to present standard formats for documenting RCRA corrective action decisions and to clarify the roles and responsibilities of the regulatory agency in developing and issuing decision documents. The decision documents addressed by this guidance are the Statement of Basis (SB) and the RTC. SBs and RTCs should be prepared when corrective action is implemented through either a permit or enforcement order. The SB and RTC represent documents similar in purpose to the proposed remedial action plan and Record of Decision (ROD) employed by the Superfund program to fulfill the requirements set forth under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

This guidance has been prepared on the basis of the Hazardous and Solid Waste Amendments of 1984 (HSWA), the final National Oil and Hazardous Waste Contingency Plan (NCP), the proposed 40 Code of Federal Regulations (CFR) 264 Subpart S and 40 CFR Part 124.

The primary purpose of the SB/RTC guidance is to standardize the format of the SB and RTC. Remedies selected in the RCRA program may be reviewed by the public on a national as well as a local level. Standardizing these remedy decision documents will:

- Provide consistency among Regions with respect to the organization and content of decision documents
- Promote clear and logical presentations of rationales for remedy selection decisions based on facility-specific information and supporting analysis.

The chapters included in this guidance address the following aspects of the RCRA remedy selection process:

Chapter 2 presents the standard format for the SB and discusses key elements to be included in each section.

Chapter 3 presents the standard format for the public notification of the public comment period.

Chapter 4 discusses the standard format for the Response to Comments (RTC) and discusses key elements to be included in each section.

Chapter 5 discusses the documentation of no effective remedial action and contingency remedy decisions.

Chapter 6 presents an example SB after which individual site-specific SBs can be patterned.

Chapter 7 presents an example RTC after which individual site-specific RTCs can be patterned. The RTC presented in this guidance includes the regulatory agency's response to comments, in addition to a brief description of the selected remedy and rationale behind the selection.

This guidance does not address situations when the selected remedy is changed or modified after the permit modification has become final or an enforcement order implementing the remedy has been issued. Procedures undertaken to reflect the amended remedy should proceed in accordance with either 40 CFR Part 124 or the terms specified in the enforcement order.

1.2 OVERVIEW OF THE RCRA CORRECTIVE ACTION PROCESS

This section describes the relationship between the decision documents addressed in this guidance and the overall RCRA corrective action process (Figure 1-1). Each stage of the corrective action process is briefly summarized below.

1.2.1 THE RCRA FACILITY ASSESSMENT

The RCRA Facility Assessment (RFA) is often the first step in the corrective action process. An RFA (or equivalent investigation) is conducted prior to the issuance of a permit, and in many cases, prior to the issuance of a corrective action order.

The RFA is a process for:

- Identifying and gathering information on releases at RCRA facilities
- Evaluating and identifying solid waste management units (SWMUs), regulated units, and other areas of concern for releases to all media (additional SWMUs may be identified after the RFA as a result of further investigations)

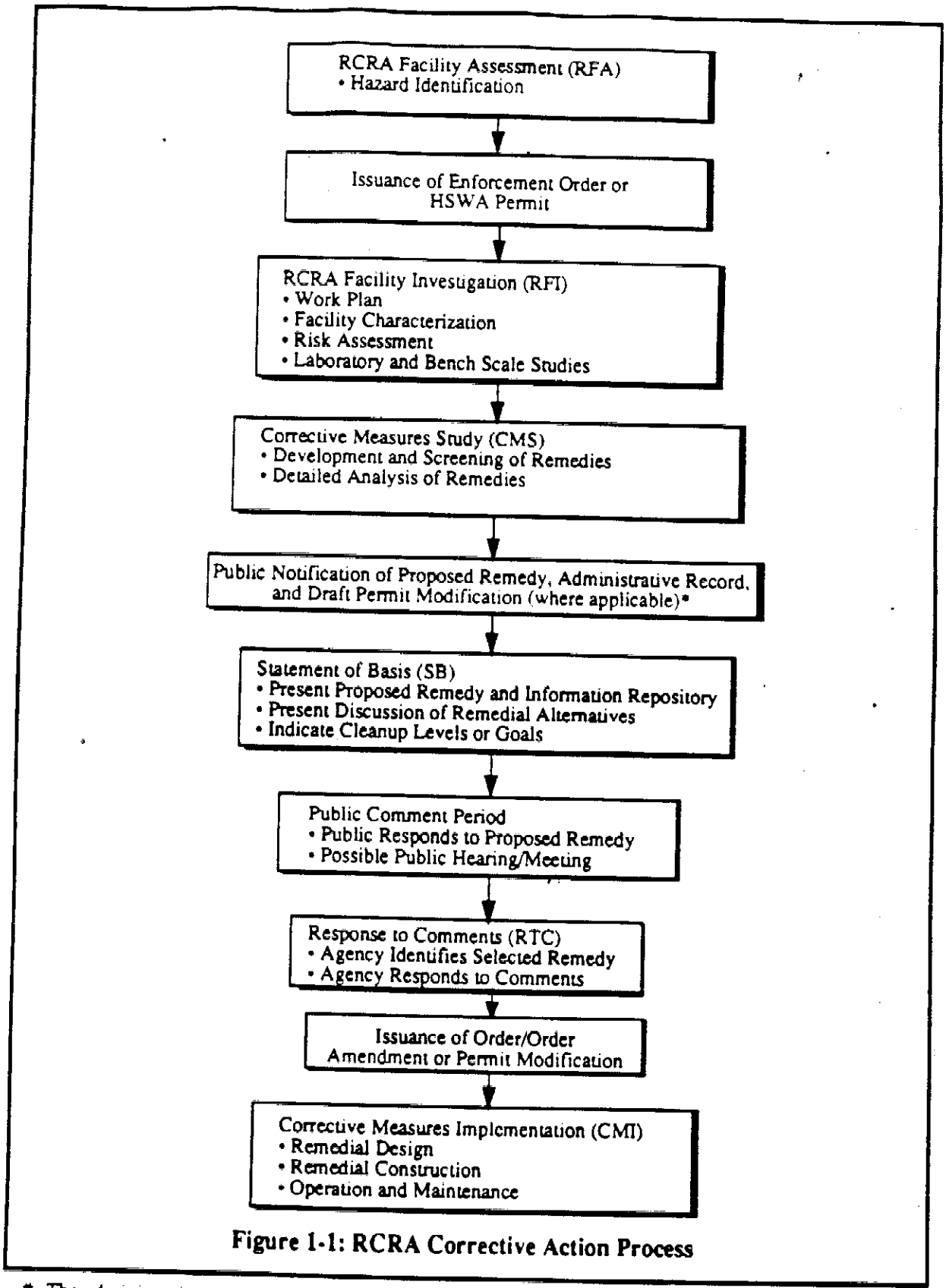

Figure 1-1: RCRA Corrective Action Process

* The administrative record should be accesible to the public during the entire corrective action process.

- Making preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility
- Screening from further investigations those SWMUs which do not pose a threat to human health and/or the environment
- Helping the regulatory agency to identify, evaluate, prioritize, and to initially clean up those facilities which present or may present the greatest threat to human health and the environment as prescribed in the Environmental Priorities Initiative (EPI).

During the RFA, Environmental Protection Agency (EPA) or State investigators will gather information on SWMUs and other areas of concern at RCRA facilities, evaluate this information to determine whether there are releases that warrant further investigation or other action at these facilities, and upon completion of the RFA, determine the need to proceed to the second phase (RCRA Facility Investigation (RFI)) of the process.

Each of the three steps of the RFA process requires the collection and analysis of data to support initial release determinations:

Step 1: The preliminary review focuses primarily on evaluating existing information.

Step 2: The visual site inspection entails the onsite collection of visual information to obtain additional evidence of release.

Step 3: The sampling visit fills any data gaps that remain upon completion of the preliminary review and visual site inspection by obtaining sampling and field data. Sampling is not always necessary if sufficient data was gathered during steps 1 and 2 of the RFA process to adequately identify the hazards at the facility.

1.2.2 INTERIM MEASURES

Interim measures (IM) for corrective action may be initiated, when appropriate, prior to the initiation or completion of the RFI, Corrective Measures Study (CMS), or Corrective Measures Implementation (CMI). Decisions concerning IMs are made based on the immediacy and magnitude of the potential threat to human health or the environment, and the implications of deferring the corrective action until the RFI/CMS is completed. Implementation of IMs must be consistent with regulatory agency priorities and must be based on protection of human health and the environment. It is not necessary to prepare a SB or a public notice for IMs implementation.

1.2.3 RCRA FACILITY INVESTIGATION

If the regulatory agency determines that a RFI is necessary, the owner or operator will be required to perform a RFI either under a permit schedule of compliance or under an enforcement order. This determination will generally be based on the results of the RFA and will identify specific units or releases needing further investigation. The RFI can range widely from a small specific activity to a complex multimedia study. The investigation generally includes the characterization/ identification of the hydrogeological setting, the type and concentration of hazardous waste or hazardous constituents released, the rate and direction at which the releases are migrating, and the extent over which releases have migrated.

The regulatory agency ensures that data and information submitted by the owner or operator during the RFI adequately describe the release(s), and can be used to make decisions regarding the need for and focus of a CMS. The RFI also includes a comparison of release characterization data against established health and environmental criteria. At the completion of the RFI, a report is prepared by the owner or operator summarizing the investigation findings. The regulatory agency then interprets these results to determine whether a CMS is necessary.

Information generated during the RFI is used not only to determine the potential need for CMI, but also to aid in the selection and implementation of these measures. While conducting the RFI, the owner or operator must collect data which may be needed to select and implement the appropriate remedy(ies). The findings of the RFI provide the rationale and basis for the CMS.

1.2.4 CORRECTIVE MEASURES STUDY

If the need for corrective measures is verified during the RFI process, the owner or operator is then responsible for performing a CMS. During this step in the corrective action process, the owner or operator will identify, evaluate, and recommend specific remedies that will remediate the release(s) based on a detailed engineering evaluation of the data and the corrective measure technologies. For some facilities, the CMS may be relatively straight forward, and an extensive evaluation of a number of remedial alternatives will not be necessary. The remedies evaluated by the owner or operator, along with the owner or operator's recommendations, are documented in a final report.

As discussed in the June 26, 1987 "Criteria for Elimination of Headquarter's Concurrence on Selected RCRA §3008(h) Orders" memorandum (directive number 9904.3), U.S. EPA Headquarters maintains a 21-day consultation role for corrective measures decisions made in conjunction with §3008(h) orders. When the 21- day consultation is in effect, regions should submit the order or corrective measures decision to Headquarters for review. If Headquarters does not raise issues during the consultation period, then agreement can be assumed and the region may issue the order or decision. If a disagreement between Headquarters and regional staff cannot be resolved, then

the outstanding issues should be raised with management.

1.2.4.1 Public Comment Period for Selection of Remedy(ies)

The regulatory agency's proposed remedy for a facility is presented to the public in a SB, and, where applicable, the draft permit modification. The SB provides a brief summary of all of the alternatives studied in the detailed analysis phase of the RFI/CMS, highlighting the key factors that led to the identification of the proposed remedy. SBs prepared in conjunction with draft permit modifications must be drafted in accordance with 40 CFR 124.7. SBs prepared in conjunction with enforcement orders are not required by regulation to adhere to 40 CFR 124.7. However, these regulations and this guidance supplement each other and may be used in concert to draft SBs.

The remedy proposed in the SB is one that best meets the applicable standards for remedies and decision factors presented in Figure 1-2. The remedy selection process as presented in this guidance is simply to be used as guidance until the Subpart S regulations are promulgated. These decision factors are further discussed in the proposed Subpart S rule. The SB is made available for public comment, in addition to the administrative record, including the RFI and CMS Reports, and, where applicable, the draft permit modification. The public may comment on the RFI and CMS, as well as the proposed remedy, at this time. If warranted, the regulatory agency may require the owner or operator to perform additional CMSs in response to public comment. Additional studies may be conducted pursuant to a modified enforcement order, a new enforcement order, or permit conditions.

1.2.4.2 Response to Comments

Following receipt of public comments, the regulatory agency is required to prepare a RTC prior to the issuance of any final permit decision pursuant to 40 CFR 124.17. This RTC must be prepared in accordance with 40 CFR 124.17. A RTC should also be prepared after the public comment period but prior to those facilities undertaking corrective action pursuant to an enforcement order. If the proposed remedy is selected for implementation, RTCs should be finalized within 30 work-days after the public comment period ends. More time may be needed to finalize RTCs when the proposed remedy is not selected for implementation.

The regulatory agency's response to public comments and the remedy(ies) selected by the regulatory agency should also be documented in the RTC. A RTC which documents the selected remedy for a facility will serve three basic functions:

- Responds to comments received during, or prior to the public comment period
- Describes the technical parameters of the selected remedy, specifically the treatment, engineering, and institutional components, as well

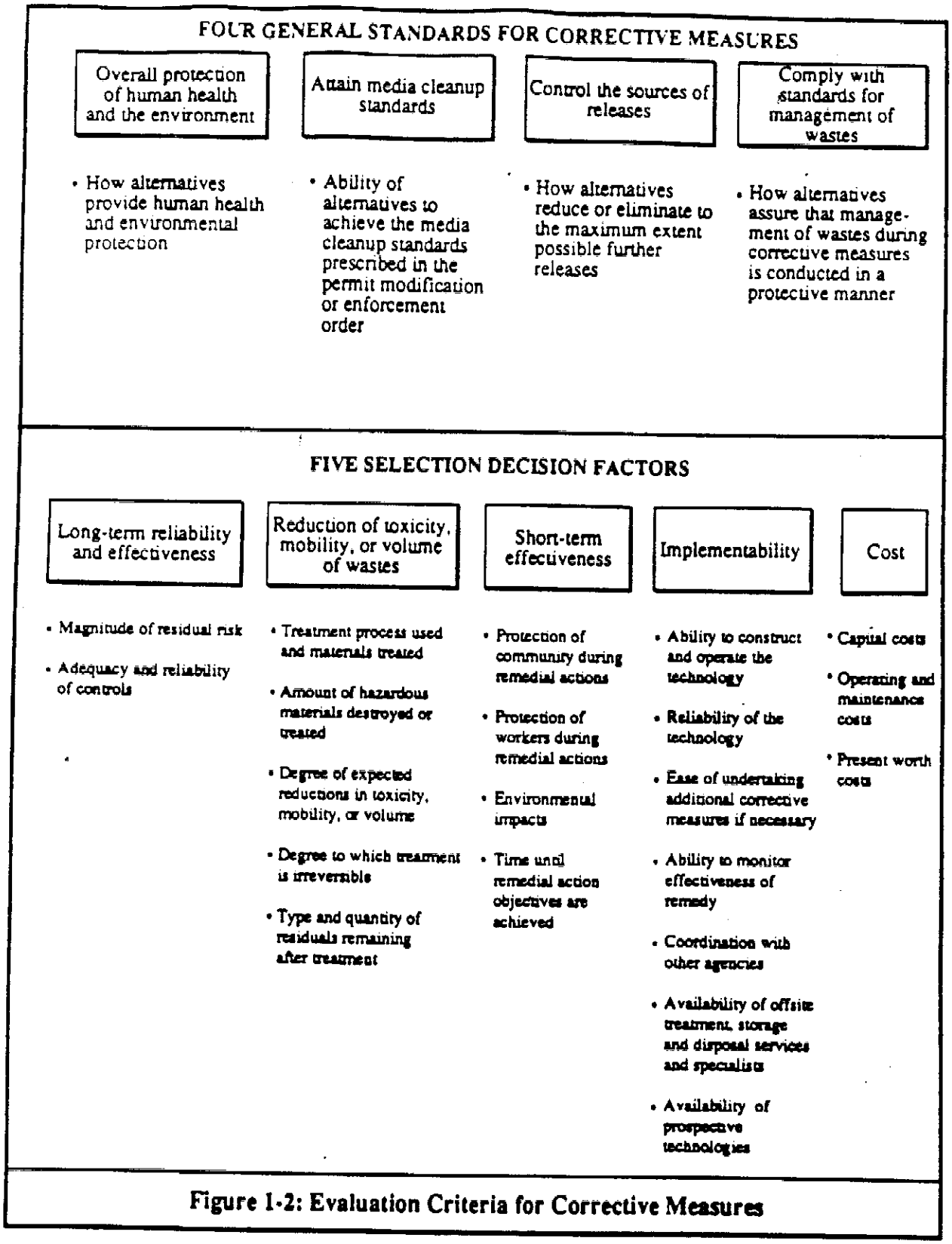

Figure 1-2: Evaluation Criteria for Corrective Measures

remediation goals

- Provides the public with a consolidated source of information about the facility and the chosen remedy, including the rationale behind the selection.

1.2.5 CORRECTIVE MEASURES IMPLEMENTATION

The permit modification or corrective action order provides the framework for the transition into the next phase of the remedial process, CMI. The CMI program includes designing, constructing, operating, maintaining, and monitoring the performance of the remedy(ies) selected to protect human health and the environment.

1.3 ADDITIONAL INFORMATION

This guidance addresses only the preparation of the SB and RTC. Other guidance documents that address other stages of the corrective action process are also available. Because preparation of the SB relies to a great extent on the information collected and analyzed during the RFI/CMS process, the RFI Guidance (OSWER Directive 9502.00-6D, May 1989) may be particularly useful. Many portions of the SB contain summaries of information that are generated during the RFI and CMS. Additional sources of information on the corrective action process and remedy selection are listed in Chapter 8 of this guidance.

CHAPTER 2

WRITING THE STATEMENT OF BASIS

2.1 INTRODUCTION

EPA is committed to providing a meaningful opportunity for the public to be informed of and participate in decisions that affect them and their communities. The administrative record is the basis for corrective action decisions and can be a tool in fulfilling EPA's public involvement objectives. The SB and draft permit modification (if applicable) are the public participation documents that summarize the corrective action options and preferences and solicit public comment. This chapter presents the purpose of the SB and a suggested outline and format for drafting it.

2.2 PURPOSE OF THE STATEMENT OF BASIS

The administrative record is the documentation assembled during the corrective action process. Figure 2-1 provides an overview of this process. The SB summarizes the information contained in the RFI/CMS reports and the administrative record, and is designed to facilitate public participation in the remedy selection process by:

- Identifying the proposed remedy for a corrective action at a facility and explaining the reasons for the proposal
- Describing other remedies that were considered in detail in the RFI and CMS reports
- Soliciting public review and comment on all possible remedies considered in the RFI and CMS reports, and on any other plausible remedies
- Providing information on how the public can be involved in the remedy selection process.

The SB is a public participation document and is expected to be widely read. The SB, therefore, should be written in a clear and concise manner using nontechnical language. In addition, the SB should direct the public to the RFI and CMS reports as the primary source of detailed information on the corrective measures analyzed, as well as other site-specific information.

The SB describes the proposed remedy, but does not select the final remedy for a facility. This approach allows for additional information to be

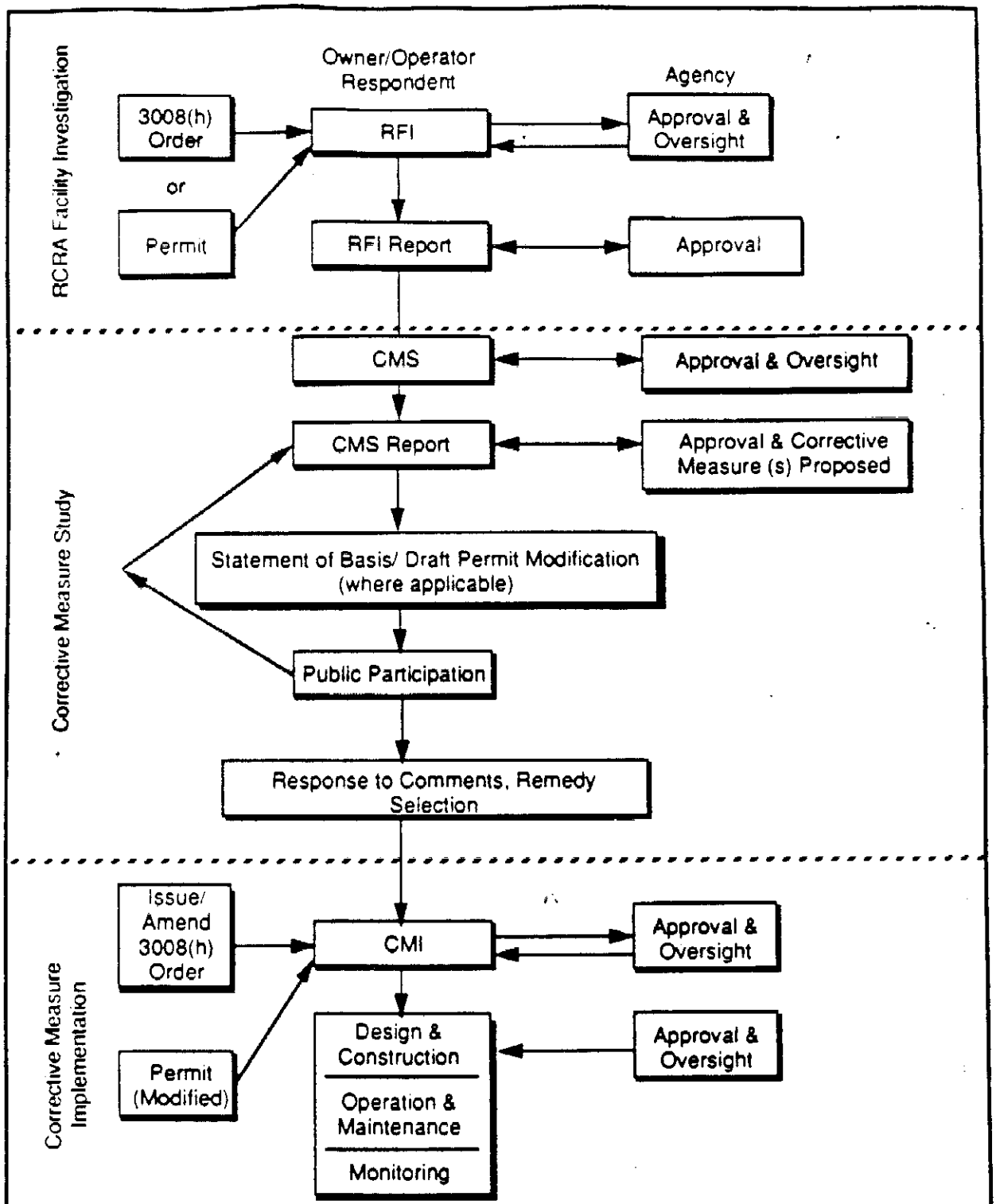

Figure 2-1: The Corrective Action Decision Making Process

Note: The corrective action process allows for some flexibility; deviations from this illustration may be appropriate in certain situations.

considered during the public comment period. Following this period, public comment and/or additional data may result in changes to the remedy or in another choice of remedy. After the regulatory agency has considered all comments from the public, the final decision, selecting the remedy, or determining the need to develop another option, is documented in the RTC.

In emphasizing that the proposed remedy is only an initial recommendation, the SB should clearly state that changes to the proposed remedy, or a change from the proposed remedy to another alternative, may be made if public comments or additional data indicate that such a change would result in a more appropriate solution. The final decision regarding the selected remedy(ies) should be documented in the final permit modification (if applicable) with the accompanying RTC after the regulatory agency has taken into consideration all comments from the public. An important function of the SB is to solicit public comment on <u>all</u> possible alternatives (alternatives not evaluated in the CMS may be proposed by the public at this time).

2.3 WRITING THE STATEMENT OF BASIS

The SB summarizes essential information from the RFI and CMS reports. The RFI and CMS reports should be referenced in the SB. The SB should:

- Briefly summarize the environmental conditions at the facility as determined during the RFI
- Identify the proposed remedy
- Describe the remedial alternatives evaluated in sufficient detail to provide a reasonable explanation of each remedy
- Provide a brief analysis that supports the proposed remedy, discussed in terms of the evaluation criteria.

Exhibit 2-1 provides a recommended outline of the SB. Variations to the outline may be made as appropriate.

The following subsections provide more specific guidance on the key elements of the SB.

EXHIBIT 2-1

OUTLINE FOR THE STATEMENT OF BASIS

INTRODUCTION

- Provide facility name and location.
- Introduce document's purpose, which is to:
  - Identify proposed remedy and explain rationale for preference
  - Describe all remedies analyzed
  - Serve as companion to the RFI/CMS and administrative record file
  - Solicit public involvement in selection of a remedy(ies).
- Stress importance of public input on all alternatives, including options not previously studied.

PROPOSED REMEDY

- Identify proposed remedy.

FACILITY BACKGROUND

- Provide brief overview of site.
- Describe site history.
- Provide brief summary of the RFI.

SUMMARY OF FACILITY RISKS

- Provide an overview of the following:
  - Contaminated media
  - Chemicals of concern
  - Baseline exposure scenarios (e.g., routes of exposure—current and future land-use scenarios).
  - Current and potential facility risks (including both carcinogenic and noncarcinogenic threats).
- Discuss ecological risk(s), as appropriate.

SCOPE OF CORRECTIVE ACTION

- Describe scope of problem that the remedy will address.
- If it is a phased remedy, describe the role that each phase will address.
- Identify how the remedy or each phase of the remedy addresses the problem.

EXHIBIT 2-1 (continued)

SUMMARY OF ALTERNATIVES

- Provide brief narrative description of alternatives evaluated in detail during the CMS (may include engineering components, treatment components, estimated present worth cost, implementation time, and the major standards associated with the alternative(s)).

EVALUATION OF THE PROPOSED REMEDY AND ALTERNATIVES

- Introduce the evaluation criteria.
- Provide the rationale for the proposed remedy by profiling it against the evaluation criteria and highlighting how it compares with the other remedies.
- Discuss methods that will be used to monitor the remedy's effectiveness.
- Discuss the how the proposed remedy will protect human health and the environment.

PUBLIC PARTICIPATION*

- Describe previous or ongoing public participation activities and how they impacted the remedy evaluation (if appropriate).
- Provide notice of public comment period (written comments are encouraged).
- Note time and place for a public meeting(s)(if they are scheduled) or offer opportunity for meeting.
- Provide the location of administrative record files and information repositories and times that the record is available for review (e.g., 9-5 weekdays, or only upon appointment).
- Name and phone number of person to contact for more information.

* Public includes the general public, the owner or operator, and other parties (e.g., public interest groups, other regulatory agencies).

2.4 SECTION BY SECTION DESCRIPTION OF THE STATEMENT OF BASIS

2.4.1 INTRODUCTION

This introductory section should include the facility name and location. The public should be informed of the function of the SB in the remedy selection process, specifically, that its fourfold purpose is to:

- Identify the proposed remedy for corrective action at a facility and explain the reasons for the proposal
- Describe the other remedial options considered in detail in the CMS report
- Solicit public review of and comment on all remedial alternatives, including those not previously studied
- Provide information on how the public can be involved in the remedy selection process.

A clear statement should be made that the SB highlights key information from the RFI and CMS reports but is not a substitute for these documents. The SB should refer the reader to the RFI and CMS reports and administrative record as more complete sources of information regarding the corrective action. The first section of the SB should stress that public input on all alternatives, and on the information that supports the alternatives, is an important contribution to the remedy selection process. The public should be encouraged to submit comments and should be informed that their comments can influence the regulatory agency's proposal. The point should be made that the final corrective action plan, as presented in the final permit modification or corrective action order and RTC, could be different from the proposed remedy, depending upon new information or an argument that the regulatory agency may consider as a result of public comments.

2.4.2 PROPOSED REMEDY

The proposed remedy should be identified. Further discussion of the proposed remedy in terms of the decision criteria should be included in the "Evaluation of Alternatives" section of the SB.

2.4.3 FACILITY BACKGROUND

The facility background should include a facility map depicting the facility's location and the areas of concern. This section should also include a brief description of the facility, including the history of waste

generation, management, treatment, storage, and/or disposal that has taken place, the major contaminants of concern, the contaminated media, and the extent of contamination.

2.4.4 SUMMARY OF FACILITY RISKS

Although performing a risk assessment (RA) is not a requirement of the corrective action process, it is strongly recommended that a RA be conducted as a part of the RFI. The scope of the RA will depend on facility characteristics. This section of the SB should summarize the extent of contamination at the facility and the risks posed to human health and the environment using information developed during the RFI. The summary of facility risks should include key findings made in the baseline risk assessment conducted as part of the RFI. This discussion should:

- Identify contaminated media
- Identify contaminants of concern
- Describe exposure pathways (e.g., routes of exposure—ground water, surface water, air, and soil)
- Describe the potentially exposed population
- Discuss environmental risks as appropriate (ecological receptors potential exposures, and potential effects of exposures)
- Describe how current risks compare to remediation goals (the overall remediation goal of 10^{-6} should be used as the point of departure in situations where there are no existing standards, such as MCLs).

The description of facility risks should not rely solely on standard numeric risk representations (such as cancer risks of 10^{-3} or a hazard quotient value of 22). These risk numbers should be accompanied by a discussion that explains, for example, that a cancer risk level of 10^{-3} means that one additional person out of a thousand is at risk of developing cancer if the facility is not cleaned up. Similarly, for noncarcinogenic effects, the discussion of the hazard quotient and hazard index should state that a hazard quotient (the ratio of the level of exposure to an acceptable level) greater than 1.0 indicates that the exposure level exceeds the protective level for that particular chemical. If the hazard quotients for individual chemicals are less than 1.0 but the sum of the hazard quotients for all substances in an exposure medium (i.e., the hazard index) is greater than 1.0, then there may be a concern for potential health effects.

In addition, for proposed remedies other than "no action," this section of the SB should include a statement such as:

> "Actual or threatened releases of hazardous constituents from this facility, if not addressed by the proposed remedy or another remedy, may present a current or potential threat to human health and the environment."

2.4.5 SCOPE OF CORRECTIVE ACTION

This section of the SB should summarize the overall strategy for remediating the facility and describe how the remedy being considered in the SB fits into that overall strategy.

If the response is being carried out in a phased CMI plan, the purpose of each phase and their sequence should be described. For example, the following language could be included in this section:

> "This is the second of three planned phases for the facility. The first phase provided the community with an alternate water supply to prevent ingestion of contaminated ground water. This phase addresses remediation of the contaminated ground water, one of the principal threats posed by the facility. The third and final phase will address the contaminated soil, which represents the source of the ground water contamination which is the other principal threat posed by the facility."

As the above example illustrates, the SB's description of the overall facility strategy and the function of the proposed remedy should indicate how and through what action or series of actions the principal threats posed by the facility will be addressed. This section of the SB should help establish the basis for the finding made in the RTC as to whether or not the selected remedy is protective of human health and the environment.

2.4.6 SUMMARY OF ALTERNATIVES

The Summary of Alternatives section should provide a brief narrative of the remedies studied in the detailed analysis phase of the CMS report. This description may include the treatment technology(ies); engineering controls; institutional controls; quantities of waste handled; implementation requirements; estimated construction, operation, and maintenance costs; and estimated implementation time frame associated with each remedy.

These descriptions also should incorporate the major standards associated with each option. For example, standards associated with a source control remedy, such as RCRA Subtitle C or D closure standards, should be incorporated into the discussion, as appropriate. For treatment based remedies, the standards associated with treating hazardous substances (e.g., RCRA land disposal restrictions, RCRA incineration standards in Subpart O, Clean Air Act Standards, etc.) should also be described. Exhibit 2-2 lists standards that may be discussed in describing the remedies.

2.4.7 EVALUATION OF THE PROPOSED REMEDY AND ALTERNATIVES

This section should begin by identifying the proposed remedy. Next, the evaluation criteria used to evaluate the alternatives in the detailed analysis in the CMS should be presented. The evaluation criteria encompass four general standards and five corrective measure selection decision factors that assist in gauging the overall effectiveness of the remedial alternatives. Figure 1-2 presents information on the organization of the criteria and the major points that should be considered under each criterion. The SB should summarize all alternatives with respect to the applicable criteria. More specifically, the SB should address the following elements with regard to the proposed remedy:

- The section should include a description of the technical features of the remedy. This description must be complete enough to enable a reviewer to determine that it complies with the standards for protectiveness, attainment of media cleanup standards, source control, and waste management practices imposed on all RCRA remedies.

- Media cleanup standards should be identified.

- The conditions that the owner or operator must fulfill to demonstrate compliance with the media cleanup standards established in the remedy selection process should be discussed. In addition, any techniques that will be used to monitor the remedy's effectiveness should also be discussed. For example, a modified permit/enforcement order might require the owner or operator to continue monitoring ground water over a set period after a cleanup standard has been achieved to ensure that the level is not subsequently exceeded. In addition, the permit/enforcement order might discuss the cleanup standards that apply to the media undergoing corrective action. Again, specific details on compliance measurements might not be available at remedy selection, but would be addressed through remedy design.

- Any procedures the owner or operator must follow to remove, decontaminate, or close units or structures during remedy implementation should be discussed, as well as any post-closure care requirements that will be imposed.

EXHIBIT 2-2

STANDARDS THAT MAY APPLY
TO RCRA CORRECTIVE ACTIONS

- Safe Drinking Water Act (SDWA):

  - Maximum Contaminant Levels (MCLs); and
  - MCL Goals (MCLGs).

- Resource Conservation and Recovery Act (RCRA) Subtitle C (Hazardous Waste Requirements):

  - Closure (i.e., landfill or clean closure)
  - Subpart F Ground Water Monitoring (including post-closure care)
  - Subpart X Miscellaneous Units
  - Subpart AA Accelerated Air Emissions Standards
  - Location Standards
  - Minimum Technology
  - Subpart O Incineration
  - Land Disposal Restrictions
  - Unit-Specific Design and Operating Standards (e.g., for tanks, containers)
  - Part 261 - Identification and Listing of Hazardous Waste
  - Part 262 - Standards Applicable to Generators of Hazardous Waste
  - Part 263 - Standards Applicable to Transporters of Hazardous Waste
  - Proposed Subpart S Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities.

- RCRA Subtitle D (Solid Waste Requirements).

- Clean Water Act:

  - Federal Water Quality Criteria (FWQC)
  - Publicly-Owned Treatment Works (POTW) standards
  - Effluent Limitations and Guidelines
  - Requirements for Dredge and Fill Activities.

- Toxic Substances Control Act (TSCA):

  - Polychlorinated biphenyls (PCB) Standards.

- Clean Air Act (CAA):

  - National Ambient Air Quality Standards (NAAQS)
  - State Implementation Plan (SIP).

- State Standards.

- This section should discuss the schedule for initiating and completing all major technical features and milestones of the remedy.

The SB should use the evaluation criteria to profile the performance of the proposed remedy. In addition, the proposed remedy should be briefly compared to the other alternatives under the appropriate criteria.

The conclusion of this section of the SB should include a summary that says, based on information currently available, the proposed remedy provides the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. This section should state that the proposed remedy satisfies the following criteria:

- Be protective of human health and the environment
- Control the sources of releases so as to reduce or eliminate, to the maximum extent practicable, further releases that may pose a threat to human health and the environment
- Attain the media cleanup standards
- Comply with applicable standards for management of wastes.

2.5 PUBLIC PARTICIPATION

The public should be informed of the following:

- Dates of the public comment period
- Date(s), time(s), and location(s) of the public meeting(s) scheduled (offer to hold a meeting upon request if one has not been scheduled)
- Location of information repositories and administrative record file(s), and hours of availability
- Names, phone numbers, and addresses of the regulatory agency personnel who will receive comments or supply additional information.

CHAPTER 3

THE NEWSPAPER NOTIFICATION OF PROPOSED CORRECTIVE ACTION AND AVAILABILITY OF THE ADMINISTRATIVE RECORD

This chapter summarizes the guidelines for the newspaper notification, which announces the availability of the SB, the RFI/CMS reports, the administrative record, and, where applicable, the draft permit modification. In addition, the newspaper notification presents guidance on procedures for the public comment period.

3.1 PROCEDURES

Upon completion of the RFI and CMS, the agency should prepare a SB and draft permit modification (where applicable) and notify the public of the availability of the RFI/CMS reports, SB, draft permit modification (where applicable), and administrative record. The following guidelines are recommended:

- Publish a notice and brief analysis of the SB and make the appropriate documents available to the public.
- Include sufficient information in the notice and analysis as may be necessary to provide a reasonable explanation of the proposed remedy and a list of the remedial alternatives analyzed during the CMS.
- Publication should include, at a minimum, publication in a major local newspaper of general circulation. In addition, each item developed, received, published, or made available to the public should be available for public inspection and copying at or near the facility or site where the corrective action is being considered. Public libraries, schools, and county courthouses can be used to house a copy of the administrative record when the facility is not located in proximity to the regional or state office.
- In addition to English, publications should be printed in dominant second languages where applicable.

For those facilities undertaking corrective action to satisfy permit conditions, the agency must notify the public of the availability of the RFI/CMS reports and the draft permit modification pursuant to 40 CFR Part 124.10.

3.2 WRITING THE NEWSPAPER NOTIFICATION

The agency's newspaper notification should include a brief abstract of the SB, which describes the remedial alternatives analyzed during the CMS and identifies the proposed remedy. The notice should be published in a widely read section of the newspaper, rather than in the classified advertisements, obituary section, or legal notices. Key elements of the notification are summarized below.

3.2.1 SECTION BY SECTION DESCRIPTION OF THE NEWSPAPER NOTIFICATION

Newspaper notifications of permit actions must be prepared in accordance with 40 CFR Part 124.10(d). Exhibit 3-1 lists requirements for public notices pursuant to 40 CFR Part 124.10(d). Newspaper notifications prepared for a facility undergoing corrective action under an enforcement order should also discuss the specific items specified in 40 CFR 124.10(d). The elements listed below provide an outline for the newspaper notification.

- Facility Name and Location. The notice should include the proper facility name and location.

- The Date and Location of a Public Meeting (if scheduled). If a meeting has not been requested or scheduled, the notice should inform the public of its right to request one.

- Public Participation. The notice should inform the public of its role in the remedy selection process and provide the following information:

  - The location of the information repositories and administrative record

  - The methods by which the public may submit comments

  - The dates of the public comment period.

- Identification of Proposed Remedy. A brief statement of the major components of the proposed remedy should be included.

- Alternatives Evaluated in the Detailed Analysis. The notice should list corrective measure alternatives evaluated in the detailed analysis phase of the CMS.

- Request for Public Comments. The notice should emphasize that the agency is soliciting public comment on all of the corrective measure alternatives, as well as on the proposed remedy. It should include a

EXHIBIT 3-1

SUMMARY OF §124.10(d) PUBLIC NOTICE REQUIREMENTS

Public Notice Requirements

124.10(d)(1)(i)	Name and address of office processing permit action.
124.10(d)(1)(ii)	Name and address of permit applicant.
124.10(d)(1)(iii)	Brief description of facility activities.
124.10(d)(1)(iv)	Name and address of agency contact.
124.10(d)(1)(v)	Brief description of the comment procedures.
124.10(d)(1)(vi)	The location and availability of the administrative record.
124.10(d)(1)(ix)	Any additional information considered necessary or proper.

Public Notice Requirements for Hearings

124.10(d)(2)(i)	Date of previous public notices relating to permit.
124.10(d)(2)(ii)	Date, time, and place of hearing.
124.10(d)(2)(iii)	Brief description of the nature of hearing.

clear statement that the proposed remedy is only a preliminary determination and that other options could be selected as the remedy based upon public comment, new information, or a reevaluation of existing information. The readers should be referred to the RFI/CMS report and other contents of the administrative record file for further information on all of the remedial alternatives considered.

3.3 PUBLIC COMMENT PERIOD

The agency should provide a reasonable opportunity for submission of written and/or oral comments and an opportunity for a public meeting regarding the proposed remedy, the RFI/CMS reports or any information contained in the administrative record for the draft permit modification or corrective action order. Pursuant to 40 CFR 124.10(b), the agency must allow at least 45 days for public comment on draft permit modifications. It is recommended that 30 to 45 days be allowed for public comment on the proposed remedy when the corrective action is implemented through an enforcement order.

The agency should make the relevant documents available to the public at the time the public comment period begins. In addition, the agency should ensure that any factual information relied upon during the remedy selection process is included as part of the administrative record and is available to the public during the public comment period.

The agency is encouraged to respond to oral or written comments received prior to the public comment period. However, the agency should inform commenters that if they wish to ensure that comments submitted before the comment period receive an agency response, they should resubmit comments that were initially made during the RFI/CMS process during the formal public comment period. Written comments should be included in the administrative record.

Agency personnel may find it useful to request that comments voiced during public hearings also be submitted in writing at that time. This practice will help the agency to respond to the comments at a later date should an immediate response not be available.

CHAPTER 4

ELEMENTS OF THE FINAL DECISION AND RESPONSE TO COMMENTS

4.1 INTRODUCTION

A RTC is prepared by the regulatory agency at the conclusion of the public comment period. The RTC should include a brief summary of comments received during the public comment period as well as activities (e.g., public meetings) undertaken by the regulatory agency. The summary should respond to comments and discuss, where applicable:

- Identification of the selected remedy
- Any changes made to the proposed remedy due to comments
- Rationale for not selecting an alternate remedy or making revisions to the selected remedy as suggested by a commenter(s)
- How the selected remedy differs from the community or owner or operator's proposed remedy
- Any alternatives recommended that were not evaluated in the CMS and why they were not included.

4.2 PURPOSE OF THE RESPONSE TO COMMENTS

The RTC serves several purposes. First, the RTC identifies the selected remedy. Second, it provides the regulatory agency decision makers with information about community preferences regarding the remedial alternatives, and general concerns about the facility. Third, it demonstrates how public comments were integrated into the decision making process. Fourth, the RTC provides a contemporaneous written record of the regulatory agency's RTC. This will enable a court, or any interested party reviewing the selected remedy, to determine whether the regulatory agency provided a reasonable RTC in the record. An adequate RTC is essential in defending final permit modifications or orders during remedy implementation negotiations or in judicial proceedings.

To serve these purposes, the RTC should be a concise and complete summary of comments received from the public, including the owner or operator, during the public comment period. The comments should be accompanied by the

regulatory agency's responses. Responses should be clear, accurate, and carefully written. Exhibit 4-1 presents an outline that may be used to draft the RTC.

The RTC is prepared for the signature of the Regional Administrator (RA) or the signatory of the document that is implementing the corrective action (e.g., corrective action order or permit modification). The final permit modification should be accompanied by the RTC. If the selected remedy differs from the proposed remedy as discussed in the SB, the final permit modification or order will reflect such changes. These changes should be specified and explained in the RTC (refer to 40 CFR 124.17(a)(1) for permit modifications).

In the event that comments are not submitted during or prior to the public comment period, nor is a public hearing requested, a RTC should still be prepared. In such cases, the RTC should present the selected remedy, state that comments were not submitted, and include a declaration that the selected remedy is protective of human health and the environment.

4.3 WRITING THE RESPONSE TO COMMENTS

The RTC should:

- Identify the selected remedy(ies), taking into account the comments received during the public comment period
- Identify comments raised during the public comment period
- Respond to public comments
- Discuss any future actions that will accompany the implementation of the selected remedy.

Additional guidance on preparing the RTC is available in "Guidance on Public Involvement in the RCRA Permitting Program," (OSWER Directive 9500.00-1A, January 1986).

4.4 SECTION BY SECTION DESCRIPTION OF THE RESPONSE TO COMMENTS

4.4.1 INTRODUCTION

This introductory section should include the facility name and location. The public should be informed of the function of the RTC in the remedy selection process. Most importantly, this section should clearly explain how the regulatory agency considered and responded to the comments received.

EXHIBIT 4-1

FINAL DECISION AND RESPONSE TO COMMENTS

[FACILITY NAME]

INTRODUCTION

The RTC documents for the public record:

- Concerns and issues raised during corrective action planning
- Comments raised during the comment period on the proposed remedy, RFI, or CMS
- How the regulatory agency considered and responded to these concerns.

SELECTED REMEDY

Briefly discuss:

- The remedy(ies) selected for implementation at the facility
- Brief justification to support the selection of the corrective measure(s) using the evaluation criteria.

PUBLIC PARTICIPATION ACTIVITIES

Briefly discuss:

- Activities conducted by the regulatory agency to elicit public participation and to address specific concerns and issues (e.g., small group meeting, news conference, and progress reports)
- The extent of the public comment period, when it started and ended
- Note whether regulatory agency staff met with concerned citizens or conducted other communication activities during the comment period, such as a public meeting or availability of technical staff to respond to questions. Mention the location, time, and level of attendance of public meeting(s), if held.

PUBLIC COMMENTS AND THE AGENCY'S RESPONSE

Briefly describe comments on the proposed remedy, RFI, or CMS from other regulatory agencies, local officials, and private citizens. Comments should be immediately followed by the regulatory agency's

EXHIBIT 4-1 (Continued)

response. This section should address the following (where applicable):

- Categorize comments by major issue or topic addressed, where appropriate.
- Provide a verbatim list of the comments received, each followed by the regulatory agency's response. Where necessary, the comments and responses can be summarized under the categories as completely as possible.
- Discuss the level of concern over each of the major issues.
- Document any modifications or changes in the proposed remedy as a result of comments.
- Give the reasons for rejecting the public's, or owner's, or operator's proposed remedy if the regulatory agency's selected remedy is different.
- Document, in detail, any remedial alternatives provided by the public which were not evaluated in the CMS, and explain why they were not evaluated.

FUTURE ACTIONS

Briefly explain:

- Any future actions the regulatory agency will take as an integral part of remedy implementation (e.g., post-closure permitting, closure plan approval).

DECLARATIONS

This section should state that the regulatory agency has determined that the corrective action being taken is appropriate and will be protective of human health and the environment. The section should conclude with the signature of the RA, or other person deemed appropriate by the regulatory agency, and the date the document was signed.

4.4.2 SELECTED REMEDY

This section of the RTC should identify and summarize the major treatment components of the selected remedy, as well as any engineering controls or institutional controls that will be part of the remedy. This section should also describe how the selected remedy will provide adequate protection of human health and the environment. The evaluation criteria used to select and justify the remedy should be discussed in this section.

4.4.3 PUBLIC PARTICIPATION ACTIVITIES

The communication activities undertaken by the regulatory agency during the public comment period should be identified in this section. This section should also identify when the public comment period was in effect, and where/when public meetings or gatherings were held.

4.4.4 COMMENTS RAISED DURING THE COMMENT PERIOD AND THE AGENCY'S RESPONSE

Comments received, followed by the regulatory agency's response, should be listed in this section. Where necessary, comments and the regulatory agency's response can be categorized by major issue and topic addressed. The level of concern over each major issue and the extent that this issue was raised should also be included in this section.

Information furnished by the public or other regulatory agencies may provide the basis for making a significant change to the proposed remedy. Changes to the proposed remedy resulting from the comments received or the receipt of new information should be fully documented. It is important that the regulatory agency respond to all significant comments. This section should also reference any new supporting information placed into the administrative record in response to comments. In addition, any remedial alternatives provided by the public which were not evaluated in the CMS should be discussed to the extent that information is available. If the changes made are major, the regulatory agency should consider the need for additional notice and opportunity to comment. Additional comment opportunities are particularly appropriate if information obtained after the SB was prepared is relied upon to change or select another remedy.

4.4.5 FUTURE ACTIONS

This section of the RTC should briefly discuss any future action the regulatory agency will take as an integral part of remedy implementation (post-closure permitting, closure plan approval). The opportunity for public participation for future actions should be made available.

4.4.6 DECLARATIONS

This section should provide the final declaration that the selected remedy is protective of human health and the environment. This section also provides the space for the RA or other person deemed appropriate by the regulatory agency, to concur with the selected remedy. Generally, the person

that signs the document implementing the corrective action (e.g., permit modification or enforcement order) should sign the RTC.

CHAPTER 5

DOCUMENTING LIMITED SCOPE REMEDIAL ACTIONS AND CONTINGENCY REMEDY DECISIONS

This chapter presents guidance on preparing the SB for two unique types of corrective action:

- Limited scope remedial actions
- Contingency remedies.

This chapter defines these decisions and outlines the modifications that should be made to the standard SB format described in Chapter 2 when documenting limited scope remedial actions or contingency remedies.

5.1 DOCUMENTING A "LIMITED SCOPE REMEDIAL ACTION" DECISION

The regulatory agency may determine that limited scope remedial action is appropriate at a facility due to limited available technologies, site conditions, or the nature of the contamination at the site. For example, it is possible that the process of remediating a wetland would result in greater environmental harm than if the contamination were left in place. Another possible example is the situation where the removal of the contamination, such as white phosphorus submerged in an estuary, would be technologically infeasible, due to the risks to the workers, the community, and the environment that would result from the use of current technology.

When a "limited scope remedial action" is implemented, some assurance that exposure pathways are restricted is needed. Any "limited scope remedial action" should be accompanied by assurance that the public is restricted from being exposed to the hazardous situation. The SB should discuss all actions that will be taken to protect the public from exposure. For example, the SB may propose that bottled water will be supplied to the public and the public drinking water wells be restricted from use.

5.2 DECISION DOCUMENTS WITH CONTINGENCY REMEDIES

In general, the regulatory agency identifies the proposed remedy in the SB and the draft permit modification (where applicable) and selects the remedy to be implemented in the final permit modification or order and accompanying RTC.

There are limited situations, however, in which additional flexibility

may be required to ensure implementation of the most appropriate remedy at a facility. In such situations, the regulatory agency may determine that a permit modification or order with a selected remedy accompanied by a contingency remedy is appropriate.

This option serves two purposes. The first is to promote the use of innovative technologies. An innovative treatment technology may appear to be the most appropriate remedy for a facility during the CMS but more testing is needed during design to verify the technology's expected performance potential. If there are uncertainties about an innovative treatment technology, then the regulatory agency may elect to include a proven technology as a contingency remedy in the SB and draft permit modification (where applicable). The second situation that may be appropriate for contingency remedies is where two different technologies under consideration appear to offer comparable performance on the basis of the decision factors, such that both could be argued to provide the "best balance of tradeoffs." Under such circumstances, the SB may identify one as the proposed remedy and the other as a contingency remedy and specify the criteria whereby the contingency remedy would be implemented.

CHAPTER 6

EXAMPLE STATEMENT OF BASIS

6.1 EXAMPLE STATEMENT OF BASIS

The following is an example of a SB which follows the standard format presented in Chapter 2. The model facility is imaginary and any similarity with an actual facility is purely coincidental.

EIO INDUSTRIAL COMPANY
Nameless, Tennessee

INTRODUCTION

This SB for the EIO Industrial Company explains the proposed remedy for cleaning up the contaminated soils and explains the reasons for this proposal identified in the draft permit modification or proposed corrective action order, if applicable. In addition, the SB includes summaries of other remedies analyzed for this facility. EPA will select a final remedy for the facility only after the public comment period has ended and the information submitted during this time has been reviewed and considered.

EPA is issuing this SB as part of its public participation responsibilities under RCRA.

This document summarizes information that can be found in greater detail in the RFI and CMS reports and other documents contained in the administrative record for this facility. EPA and the State encourage the public to review these other documents in order to gain a more comprehensive understanding of the facility and RCRA activities that have been conducted there.

EPA may modify the proposed remedy or select another remedy based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives. The public can be involved in the remedy selection process by reviewing the documents contained in the administrative record file and attending the public meeting scheduled for June 22, 1990.

PROPOSED REMEDY

The U.S. EPA [or state agency] is proposing the following remedy to address the contaminated media at the EIO facility:

- Excavate 7,500 yd^3 of contaminated soils
- Employ a low temperature volatilization step to capture the highly mobile Volatile Organic Constituents (VOCs)

- Stabilize soils
- Dispose of treated soil onsite in a capped unit.

A more detailed discussion of the proposed remedy is included below.

FACILITY BACKGROUND

In 1947, the EIO Industrial Company began disposing of septic waste at its plant located at 129 Franklin Street in Nameless, Tennessee (see Figure 6-1). In the late 1960s, the company also began to accept shipments of hazardous waste. Wastes were stored in 13 storage tanks in the 5-acre tank farm area. The wastes subsequently were pumped to seven unlined lagoons. The site ceased operation in August 1987, and is currently in the closure process.

During facility operations, soils at the tank farm area were contaminated by wastes spilled during pumping and from leaking tanks. Although the lagoons were emptied and backfilled with clean soil by the EIO Industrial Company in 1981, the subsurface soils in the 5-acre lagoon area were contaminated. In addition, both the municipal well, located a mile from the facility, and several residential wells, located within a half mile, have been contaminated by wastes from the facility.

Between 1986 and 1988, the EIO Industrial Company conducted an RFI and a CMS pursuant to permit conditions/enforcement order. They were conducted to identify the types, quantities, and locations of contaminants and to develop ways of addressing the contamination problems. The results of these studies are as follows:

- Onsite surface soils in the former lagoon and tank farm area are contaminated with varying levels of lead, chromium, and cadmium
- Onsite subsurface soils in the former lagoon and tank farm area are contaminated with trichloroethylene (TCE), other chlorinated aliphatic and polynuclear aromatic hydrocarbons, and lead
- A nearby municipal well is contaminated
- A plume of contaminated ground water extends from the site to the XYZ River.

SUMMARY OF FACILITY RISKS

During the RFI, an analysis was conducted to estimate the health or environmental problems that could result if the soil contamination at the EIO facility was not cleaned up. This analysis is commonly referred to as a

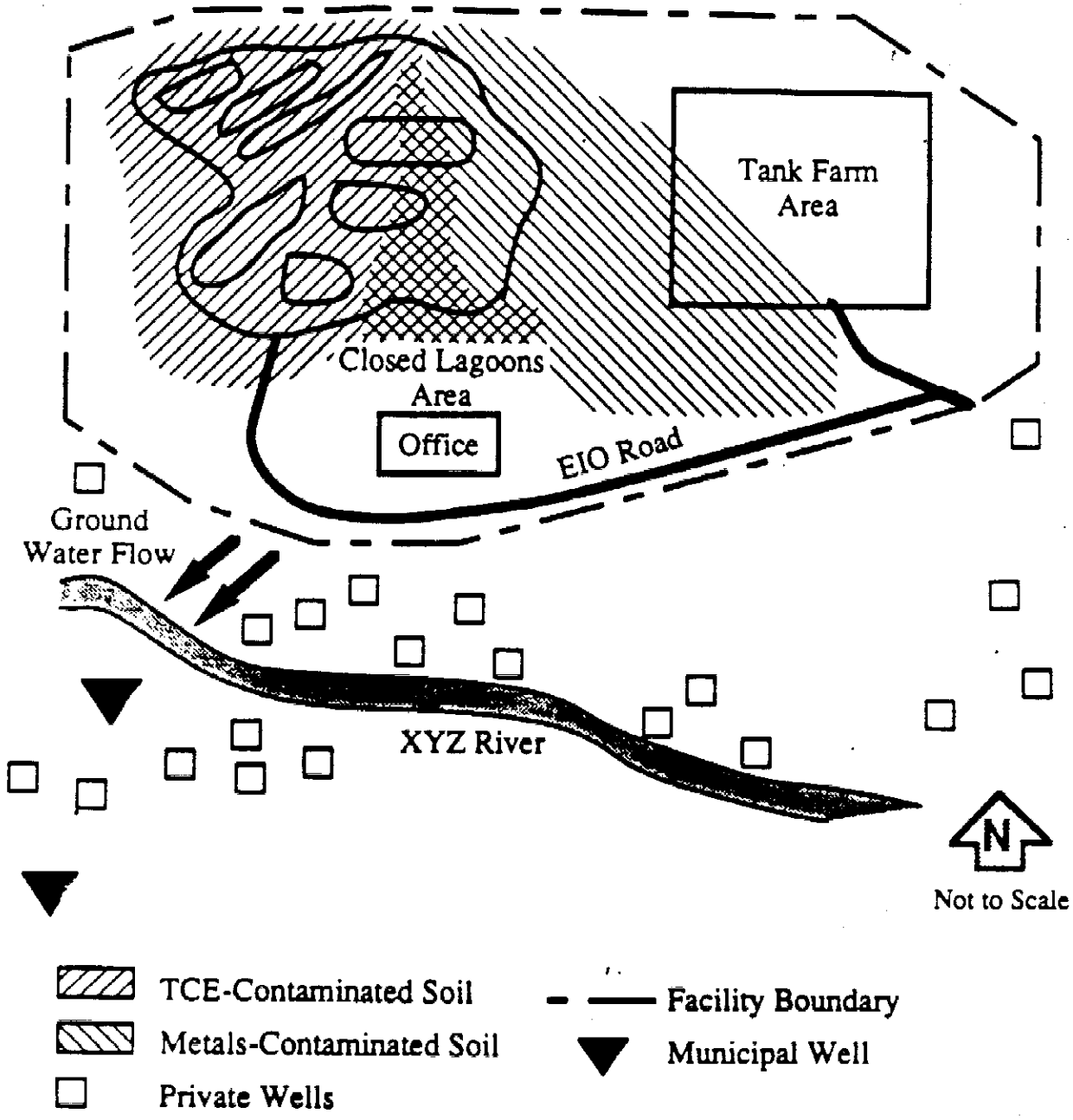

Figure 6-1: EIO Industrial Company Facility And Surroundings

baseline risk assessment. In conducting this assessment, the focus was on direct ingestion of the soil by a child playing in the area. The analysis focused on the major contaminant of concern, TCE. TCE is a volatile organic compound that is known to cause cancer in laboratory animals and thus is classified as a carcinogen. TCE is a highly mobile contaminant that typically migrates through the soil into the ground water.

Sampling of the soil at the facility found that the average concentration of TCE in the soils was 140 parts per million. This concentration level is associated with an excess lifetime cancer risk of 10^{-3}. This means that if no cleanup action is taken by EPA, one additional person per one thousand has a chance of contracting cancer as a result of the exposure to TCE-contaminated soil. This estimate was developed by taking into account various conservative assumptions about the length and quantity of exposure endured by a person and the toxicity of TCE.

EPA and the State have determined that in cleaning up the contaminated soil at the EIO facility to a concentration of 13 ppm of TCE, the excess lifetime cancer risk posed by the facility following remediation will be reduced to 10^{-6}. This cleanup target would reduce the probability of contracting cancer as a result of exposure to the contaminants in the soil to one additional person in one million. Because there are no Federal or State cleanup standards for contamination in soil, this cleanup target was established for this site as part of the risk assessment conducted during the RFI. The cleanup target was established to reduce direct contact exposure to an acceptable level, as well as to ensure that the migration of the TCE into the ground water is minimized.

Actual or threatened releases of hazardous constituents from this facility, if not addressed by the proposed remedy or one of the other remedies considered, may present a current or potential threat to human health and the environment.

SCOPE OF CORRECTIVE ACTION

The problems at the EIO facility are complex. As a result, EPA has divided the work into three manageable phases. These are as follows:

- Phase One: Remediation of Contamination in the municipal well.
- Phase Two: Remediation of Contamination of the ground water aquifer.
- Phase Three: Remediation of Contamination in the soils.

EPA has already selected remedies for Phases One and Two (the municipal well and the contaminated ground water) as noticed in the July, 1989 (permit

modification/order) and accompanying RTC. The contaminated ground water is a principal threat at this site because of the potential for direct ingestion of contaminants through drinking water wells. Both of the actions for Phases One and Two are in the CMI stage, which means that the engineers are developing specific plans for implementation of the remedy. Actual construction is planned for March 1991.

The third phase addresses the contaminated soils in the lagoon and tank farm area. This contiguous area was determined to be a principal threat at the site because of the potential threat of direct contact with the soils and the soil's impact on ground water. The cleanup objectives for this phase are to prevent current or future exposure to the contaminated soils through treatment and/or containment, and to reduce the migration of contaminants from the soil to ground water.

SUMMARY OF ALTERNATIVES

The alternatives analyzed for Phase Three are presented below. These are numbered to correspond with the numbers in the CMS Report. The alternatives for the soil cleanup are the following:

- Alternative 1: No Action.
- Alternative 2: Capping.
- Alternative 3: Excavation, Treatment of Volatile Organic Compounds in a Vaporization Loop, Lime Stabilization of Soils, Capping, and Disposal Onsite.
- Alternative 4: Excavation and Offsite Thermal Destruction.
- Alternative 5: Excavation, Onsite Thermal Destruction, and Solidification.

EIO has calculated the following costs associated with each alternative and the time needed for implementation:[1]

Alternative	Capital Cost($)	Annual Operational & Maintenance Costs($)	Present Worth($)	Months to Complete
1	0	0	0	0
2	740,485	18,120	910,260	5
3	4,666,000	41,000	5,050,150	12-15
4	39,056,421	26,200	39,301,905	36-72
5	42,463,300	26,200	42,708,780	30

[1] These numbers are purely hypothetical and do not represent Agency determinations of remedial cost.

Alternative 1:
NO ACTION

The "no action" alternative is often evaluated to establish a baseline for comparison. Under this alternative, EPA would take no further action at the site to prevent exposure to the soil contamination.

Alternative 2:
CAPPING

The contaminated soil would be left in place and a 24-inch compacted cap would be installed over the entire 10 acres of contaminated surface soils in the tank farm and lagoon areas. The cap would be designed to meet the RCRA landfill closure standards in 40 CFR 264.310, which, among other things, specify that the permeability of the cap must be less than or equal to the permeability of the natural underlying soils at the facility.

Alternative 3:
EXCAVATION, VOLATILIZATION, STABILIZATION, AND DISPOSAL ONSITE

The 7,500 yd^3 of VOC-contaminated soils from the tank farm and lagoon area would be excavated. To remove the highly mobile VOCs, a low temperature volatilization step would be inserted into the cleanup process between excavation and landfilling. Granular activated carbon (GAC) canisters would separate the volatile contaminants from the soils leaving only the less mobile organic and metal compounds in the soil to be landfilled onsite. All contaminants subject to the Land Disposal Restrictions will be treated to the treatment standards specified in 40 CFR 268. Approximately 99 percent of the VOCs would be removed by this treatment process. The used carbon canisters would be shipped offsite to be regenerated.

The treated soils would then be returned to the lagoon and tank farm area and stabilized with the 3,500 yd^3 of metal-contaminated soils not previously excavated. The lagoon and tank farm area would be regraded and revegetated and capped in accordance with the standards for RCRA landfill closure in 40 CFR 264.310.

Alternative 4:
EXCAVATION AND OFFSITE THERMAL DESTRUCTION

All 11,000 yd^3 of contaminated soils would be excavated, transported, and destroyed in an offsite thermal destruction unit. This thermal destruction process would address the VOCs in the soil; however, metals would remain in the ash and would require proper disposal. The excavation process would leave the site "clean," requiring no long-term management controls. The offsite thermal destruction unit would comply with technical standards for

incinerators, which include stack scrubbers and other recovery mechanisms to ensure that no untreated hazardous substances are released into the environment. The incinerator would destroy 99.99 percent of the VOCs in the contaminated soils. The resulting ash would be properly handled and disposed of by the operators of the thermal destruction unit.

Alternative 5:
EXCAVATION, ONSITE THERMAL DESTRUCTION, AND SOLIDIFICATION

A mobile, thermal destruction unit would be brought to the site, and 11,000 yd^3 of contaminated soils would be excavated and destroyed onsite. This thermal destruction process would address the VOCs, but the metals in the soils would remain in the ash. The onsite thermal destruction unit would comply with technical standards for incinerators. Off-gases and scrubber wastes from the thermal destruction unit would be collected and properly disposed. This incinerator would destroy 99.99 percent of the VOCs in the soil. Residual metals and ash would be solidified and disposed of offsite in a RCRA Subtitle C facility.

EVALUATION OF THE PROPOSED REMEDY AND ALTERNATIVES

The proposed remedy for cleaning up the soils (the source control phase) at the EIO facility is Alternative 3--Excavation, Volatilization, Stabilization, and Onsite Disposal in a capped unit. This section profiles the performance of the proposed remedy against the four general standards and the five remedy decision factors, noting how it compares to the other options under consideration.

1. Overall Protection. All of the alternatives, with the exception of the "no action" alternative, would provide adequate protection of human health and the environment by eliminating, reducing, or controlling risk through treatment, engineering controls, or institutional controls. The proposed remedy would treat the volatile organic contaminants in the soils, stabilize the remaining wastes, and cap the remaining residuals to reduce the risks associated with direct contact and minimize the migration of contamination from the ground water.

   Because the "no action" alternative is not protective of human health and the environment, it is not considered further in this analysis as an option for this facility.

2. Attainment of Media Cleanup Standards. All alternatives would meet their respective media cleanup standards of Federal and State environmental laws. Because the proposed remedy would involve the excavation and placement of hazardous waste, compliance with all applicable land disposal restrictions (LDR) standards must be ensured.

3. Controlling the Sources of Releases. All of the alternatives would be effective in reducing, to the maximum extent practicable, further

releases of contaminants to the ground water, surface water, air, and other soils. The proposed remedy would remove the VOC contamination in the soils through volatilization and control the release of metals by stabilization.

4. Compliance with Waste Management Standards. Alternatives 3, 4, and 5, which involve soil excavation and either treatment or offsite disposal, would comply with the applicable requirements for the management of solid waste. This would assure that the management of wastes is conducted in a protective manner.

5. Long-term Reliability and Effectiveness. The proposed remedy would reduce the inherent hazards posed by the volatile organic compounds in the contaminated soils. The treated soils would still be contaminated with other organic and metal compounds; however, the long-term risks of exposure to the remaining contaminants in the soils would be reduced by stabilizing and sealing the soils in the capped area, which would prevent migration of the contaminants to ground water, surface water, air, and other soils. A ground water monitoring system would be installed around the lagoon and tank farm area to assess the effectiveness of the treatment and disposal in the closed area.

   Alternatives 4 and 5 would permanently destroy most of the organic soil contamination (TCE, Polynuclear Aromatic Hydrocarbons (PAHs)). The ash generated by the thermal destruction units, however, would be contaminated by those metal compounds not destroyed by this process. Under Alternative 4, the ash would be disposed of in an offsite landfill to protect against risks of future human contact. Under Alternative 5, the contaminated ash would be solidified to prevent the possibility of human contact. The solidified waste would be disposed of offsite in a RCRA Subtitle C landfill.

   Alternative 5 would remove all waste to a permitted, offsite landfill, thereby eliminating the long-term risks of exposure at the EIO facility.

   The cap that would be implemented in Alternative 2 would provide long-term reductions in the amount of water that otherwise would pass through the contaminated soils. This would reduce the generation of contaminated leachate that could migrate to the ground water. Because the highly mobile VOCs will not be treated, the contaminated soils that constitute a principal threat would remain at the facility and would pose potential long-term risks of exposure. The cap's effectiveness would be evaluated through long-term monitoring. The cap would require long-term maintenance, and portions of it might need to be replaced in the future.

6. Reduction of Toxicity, Mobility, or Volume of Wastes. Only three of the alternatives would treat the wastes to reduce the toxicity, mobility, or

volume of the organics. Alternative 3 would involve treatment of the most mobile contaminants, the volatile organic compounds. The treated soils would still be contaminated with less mobile organic and metal compounds. These soils would be stabilized with the metal-contaminated soils in the lagoon and tank farm area and the area would then be capped.

Alternatives 4 and 5 both would involve incineration processes that would permanently destroy the organic contaminants. The contaminated ash would be disposed of in a RCRA landfill. Alternative 2 achieves no reduction in toxicity, mobility, or volume.

7. Short-term Effectiveness. Alternative 3 would contain the treated soils and reduce the possibility of direct human contact with contaminants more quickly than all the other alternatives, except Alternative 2 (i.e., capping). Under the proposed remedy, once the volatile organic compounds have been collected in canisters, there is some minor, short-term risk of exposure to the community during transportation of the canisters to a treatment facility. All of the alternatives that include excavation would pose some short-term risks of exposure to VOCs during the excavation process.

   Because the capacity of onsite and offsite thermal destruction units is limited under Alternatives 4 and 5, contaminated soils would be stockpiled for up to 6 years. Under these two alternatives, the risks of direct contact with stockpiled, contaminated soils would be increased until incineration has been completed because of dust. In addition, there are some risks of exposure to air emissions from the incinerators and the piles.

8. Implementability. Alternative 2 has few associated administrative difficulties that could delay implementation. Alternatives 3, 4, and 5 must recognize and comply with LDRs. The long-term monitoring that would be required to establish the continued viability of the proposed remedy would be less extensive than would be necessary for Alternative 2. The activated carbon canisters that are part of the vaporization step used in the proposed remedy are available in the area. In contrast, there is uncertainty about the availability of adequate capacity at an offsite incinerator. This could lead to delays of up to 6 years in implementing Alternative 4. Because there is only one mobile incinerator that could be used at the site, the implementation of Alternative 5 may take over 2 years to complete.

9. Cost. The present worth cost of the proposed remedy is $5,050,150. The lowest cost alternative is Alternative 2 at $910,260. The highest cost alternative is Alternative 5 at $42,708,780. Alternative 4 has a cost of $39,301,905.

In summary, Alternative 3 would achieve substantial risk reduction through treatment of the principal threat remaining at the facility (i.e., the mobile lagoon waste) and by providing for the safe management of other material that will remain at the facility. Alternative 3 achieves this risk reduction more quickly than any of the other treatment options. Based on information currently available, the proposed remedy provides the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. EPA and the State of Tennessee believe that the proposed remedy would be protective of human health and the environment; attain media cleanup standards consistent with those proposed under 40 CFR 264.525(d) and (e); control the sources of releases so as to reduce or eliminate to the maximum extent practicable, further releases; and comply with applicable standards for management of waste.

PUBLIC PARTICIPATION

EPA solicits input from the community on the cleanup methods proposed under each of the previous alternatives. The public is also invited to provide comment on remedial alternatives not addressed in the CMS. EPA has set a public comment period from June 22 through August 22, 1990, to encourage public participation in the selection process. The comment period includes a public meeting at which EPA will present the SB (and draft permit modification), answer questions, and accept both oral and written comments.

The public meeting is scheduled for 7:30 p.m., June 22, 1990, and will be held at the Nameless Community Hall, 123 Market Road, in Nameless, Tennessee.

The administrative record is available at the following locations:

Nameless Public Library
125 Elm Street
Nameless, TN 00000
(101) 999-1099
Hours: Mon-Sat, 9 a.m. - 9 p.m.

and

U.S. EPA Docket Room, Region IV
Federal Building, 10th Floor
Atlanta, GA
(555) 555-1212
Hours: Mon-Fri, 8:30 a.m. - 4:30 p.m.

Comments will be summarized and responses provided in the Response to Comments. The Response to Comments will be drafted at the conclusion of the public comment period and incorporated into the administrative record. To send written comments or obtain further information, contact:

Jane Doe
Community Relations Coordinator
U.S. Environmental Protection Agency
123 Peachtree Street, Atlanta, GA 00000
(555) 555-4640. Toll-free 1 (800) 333-1515
between 8:30 a.m. and 4:30 p.m. (Monday - Friday)